WHAT IS CLAIMED IS:

1. A piezoelectric/electrostrictive film type device comprising:

a substrate formed of a ceramic,

5   at least one piezoelectric/electrostrictive portion formed of a piezoelectric/electrostrictive porcelain composition on the substrate, and

at least one pair of electrodes on the substrate, electrically connected to the

10   piezoelectric/electrostrictive portion and including a positive electrode and a negative electrode,

wherein the piezoelectric/electrostrictive porcelain composition contains a $PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition as a major

15   component, contains 0.05 to 3.0wt% of NiO, and contains 2.0 to 22.0 mol% of Si with respect to the total number of moles of Mg and Ni, and

the piezoelectric/electrostrictive portion is solidly attached onto the substrate directly or via the

20   positive electrode or the negative electrode.

2. The piezoelectric/electrostrictive film type device according to claim 1, wherein the piezoelectric/electrostrictive porcelain composition

25   comprises the $PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition represented by the following general formula (1) as the major component:
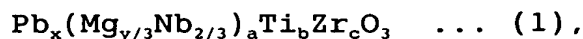
$$Pb_x(Mg_{y/3}Nb_{2/3})_aTi_bZr_cO_3 \quad \ldots \quad (1),$$

where $0.95 \le x \le 1.05$, $0.8 \le y \le 1.0$, and a, b, c are decimal numbers in a range surrounded with (a, b, c) = (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325,

5   0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375), (0.375, 0.425, 0.200) in coordinates in which a, b, c are coordinate axes (additionally, a+b+c = 1.00).

     3.   A piezoelectric/electrostrictive film type

10   device comprising:

     a substrate formed of a ceramic,

     at least one piezoelectric/electrostrictive portion formed of a piezoelectric/electrostrictive porcelain composition on the substrate, and

15   at least one pair of electrodes on the substrate, electrically connected to the piezoelectric/electrostrictive portion and including a positive electrode and a negative electrode,

     wherein the piezoelectric/electrostrictive

20   porcelain composition contains a $Pb(Mg, Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition as a major component, and contains 4.0 to 37.0 mol% of Si with respect to the total number of moles of Mg and Ni, and the piezoelectric/electrostrictive portion is solidly attached

25   onto the substrate directly or via the positive electrode or the negative electrode.

4. The piezoelectric/electrostrictive film type device according to claim 3, wherein the piezoelectric/electrostrictive porcelain composition comprises the $Pb(Mg, Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid

5 solution system composition represented by the following general formula (2) as the major component:
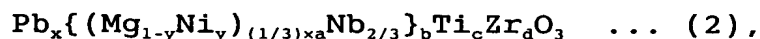
$$Pb_x\{(Mg_{1-y}Ni_y)_{(1/3)xa}Nb_{2/3}\}_bTi_cZr_dO_3 \quad \cdots \quad (2),$$

where $0.95 \leq x \leq 1.05$, $0.05 \leq y \leq 0.20$, $0.90 \leq a \leq 1.10$, and b, c, d are decimal numbers in a range surrounded with

10 (b, c, d) = (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325, 0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375), (0.375, 0.425, 0.200) in coordinates in which b, c, d are coordinate axes (additionally, (b+c+d) = 1.000).

15 5. The piezoelectric/electrostrictive film type device according to claim 1, comprising: a plurality of the piezoelectric/electrostrictive portions; and a plurality of pairs of the electrodes, wherein the plurality of piezoelectric/electrostrictive portions are alternately

20 held/stacked via the positive electrodes and the negative electrodes of the plurality of pairs of electrodes.

6. The piezoelectric/electrostrictive film type device according to claim 3, comprising: a plurality of the

25 piezoelectric/electrostrictive portions; and a plurality of pairs of the electrodes, wherein the plurality of piezoelectric/electrostrictive portions are alternately

held/stacked via the positive electrodes and the negative electrodes of the plurality of pairs of electrodes.

7.   The piezoelectric/electrostrictive film type device according to claim 1, wherein the piezoelectric/electrostrictive portion has a thickness of 1 to 10 μm.

8.   The piezoelectric/electrostrictive film type device according to claim 3, wherein the piezoelectric/electrostrictive portion has a thickness of 1 to 10 μm.
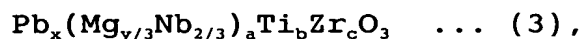
9.   A piezoelectric/electrostrictive film type device comprising:

a substrate formed of a ceramic,

a plurality of piezoelectric/electrostrictive portions formed of a piezoelectric/electrostrictive porcelain composition on the substrate, and

a plurality of pairs of electrodes on the substrate, each electrically connected to the piezoelectric/electrostrictive portion and each including a positive electrode and a negative electrode;, the plurality of piezoelectric/electrostrictive portions being alternately held/stacked via the positive electrodes and the negative electrodes of the plurality of pairs of electrodes,

wherein the piezoelectric/electrostrictive porcelain composition constituting at least one piezoelectric/electrostrictive portion (first piezoelectric/electrostrictive portion) contains a $Pb(Mg,$

5    $Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition as a major component, and contains 4.0 to 37.0 mol% of Si with respect to the total number of moles of Mg and Ni, and
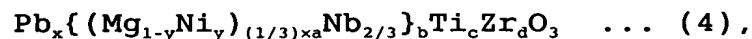
the piezoelectric/electrostrictive porcelain

10   composition constituting at least one piezoelectric/electrostrictive portion (second piezoelectric/electrostrictive portion) contains a $PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition as the major component, contains 0.05 to 3.0wt%

15   of NiO, and contains 2.0 to 22.0 mol% of Si with respect to the total number of moles of Mg and Ni.

10.   The piezoelectric/electrostrictive film type device according to claim 9, wherein the

20   piezoelectric/electrostrictive porcelain composition constituting the second piezoelectric/electrostrictive portion comprises the $PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition represented by the following general formula (3) as the major component,

25   the piezoelectric/electrostrictive porcelain composition constituting the first piezoelectric/electrostrictive portion comprises the $Pb(Mg,$

$Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition represented by the following general formula (4) as the major component,

$$Pb_x(Mg_{y/3}Nb_{2/3})_aTi_bZr_cO_3 \quad \cdots \quad (3),$$

where $0.95 \leq x \leq 1.05$, $0.8 \leq y \leq 1.0$, and a, b, c are decimal numbers in a range surrounded with (a, b, c) = (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325, 0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375), (0.375, 0.425, 0.200) in coordinates in which a, b, c are coordinate axes (additionally, a+b+c = 1.00).

$$Pb_x\{(Mg_{1-y}Ni_y)_{(1/3)xa}Nb_{2/3}\}_bTi_cZr_dO_3 \quad \cdots \quad (4),$$

where $0.95 \leq x \leq 1.05$, $0.05 \leq y \leq 0.20$, $0.90 \leq a \leq 1.10$, and b, c, d are decimal numbers in a range surrounded with (b, c, d) = (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325, 0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375), (0.375, 0.425, 0.200) in coordinates in which b, c, d are coordinate axes (additionally, (b+c+d) = 1.000).

11. The piezoelectric/electrostrictive film type device according to claim 9, wherein each of the plurality of piezoelectric/electrostrictive portions has a thickness of 1 to 10 μm.

12. The piezoelectric/electrostrictive film type device according to claim 9, wherein an Ni content of the piezoelectric/electrostrictive porcelain composition constituting the piezoelectric/electrostrictive portion of

a lowermost layer is smaller than that of the

piezoelectric/electrostrictive porcelain composition

constituting the piezoelectric/electrostrictive portion
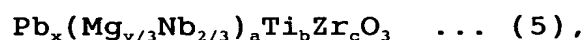
other than that of the lowermost layer.

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13.   A piezoelectric/electrostrictive porcelain

composition comprising: a $PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary

solid solution system composition as a major component;

0.05 to 3.0wt% of NiO; and 2.0 to 22.0 mol% of Si with

10   respect to the total number of moles of Mg and Ni.

14.   The piezoelectric/electrostrictive porcelain

composition according to claim 13, comprising: the

$PbMg_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system

15   composition represented by the following general formula

(5) as the major component:

$Pb_x(Mg_{y/3}Nb_{2/3})_aTi_bZr_cO_3$ ... (5),

where $0.95 \leq x \leq 1.05$, $0.8 \leq y \leq 1.0$, and a, b, c are

decimal numbers in a range surrounded with (a, b, c) =

20   (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325,

0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375),

(0.375, 0.425, 0.200) in coordinates in which a, b, c are
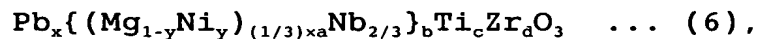
coordinate axes (additionally, a+b+c = 1.00).

25   15.   A piezoelectric/electrostrictive porcelain

composition comprising: a $Pb(Mg, Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$

ternary solid solution system composition as a major

component; and 4.0 to 37.0 mol% of Si with respect to the total number of moles of Mg and Ni.

16. The piezoelectric/electrostrictive porcelain composition according to claim 15, comprising: the $Pb(Mg, Ni)_{1/3}Nb_{2/3}O_3$-$PbZrO_3$-$PbTiO_3$ ternary solid solution system composition represented by the following general formula (6) as the major component:

$$Pb_x\{(Mg_{1-y}Ni_y)_{(1/3)xa}Nb_{2/3}\}_bTi_cZr_dO_3 \quad \cdots \quad (6),$$

where $0.95 \leq x \leq 1.05$, $0.05 \leq y \leq 0.20$, $0.90 \leq a \leq 1.10$, and b, c, d are decimal numbers in a range surrounded with (b, c, d) = (0.550, 0.425, 0.025), (0.550, 0.325, 0.125), (0.375, 0.325, 0.300), (0.100, 0.425, 0.475), (0.100, 0.525, 0.375), (0.375, 0.425, 0.200) in coordinates in which b, c, d are coordinate axes (additionally, (b+c+d) = 1.000).